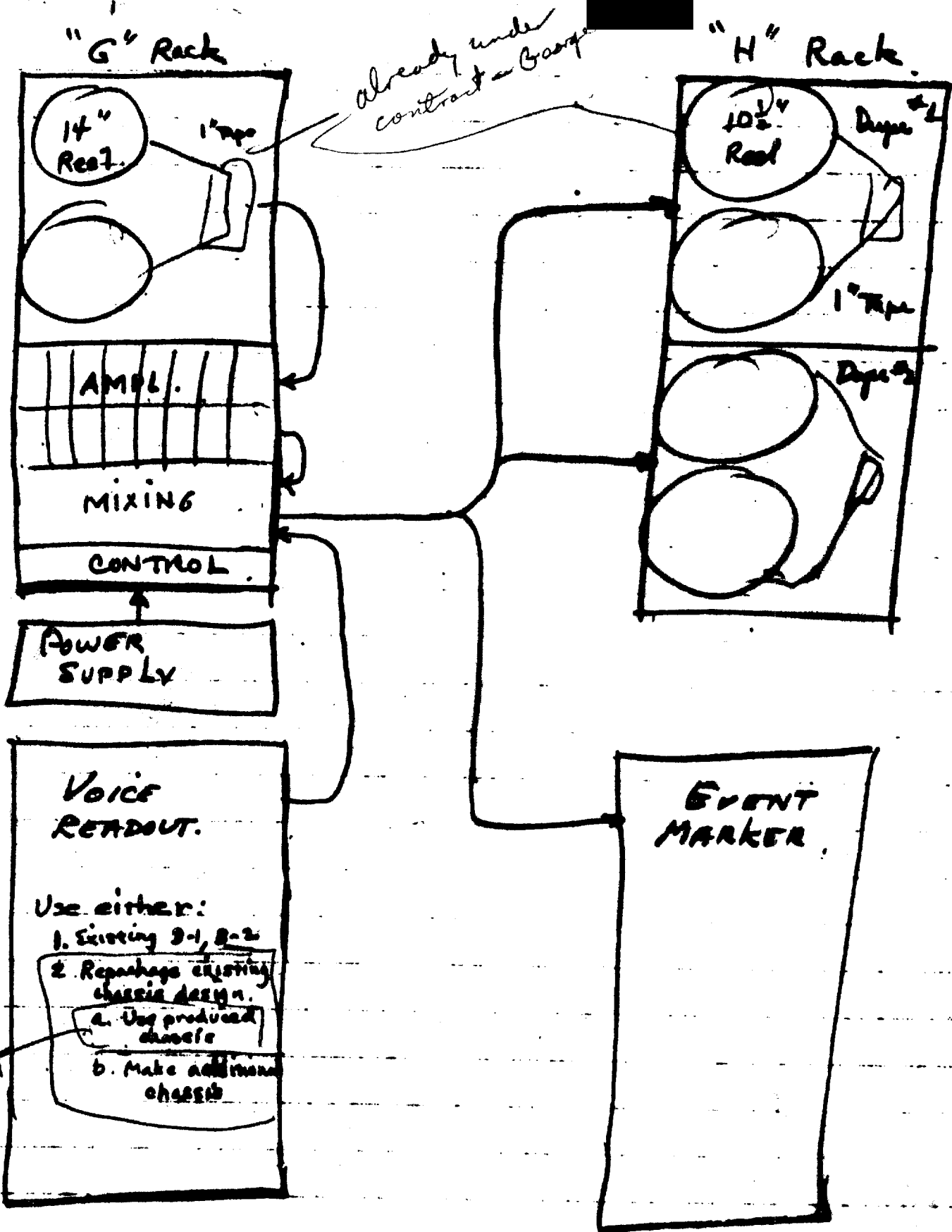


DUPING

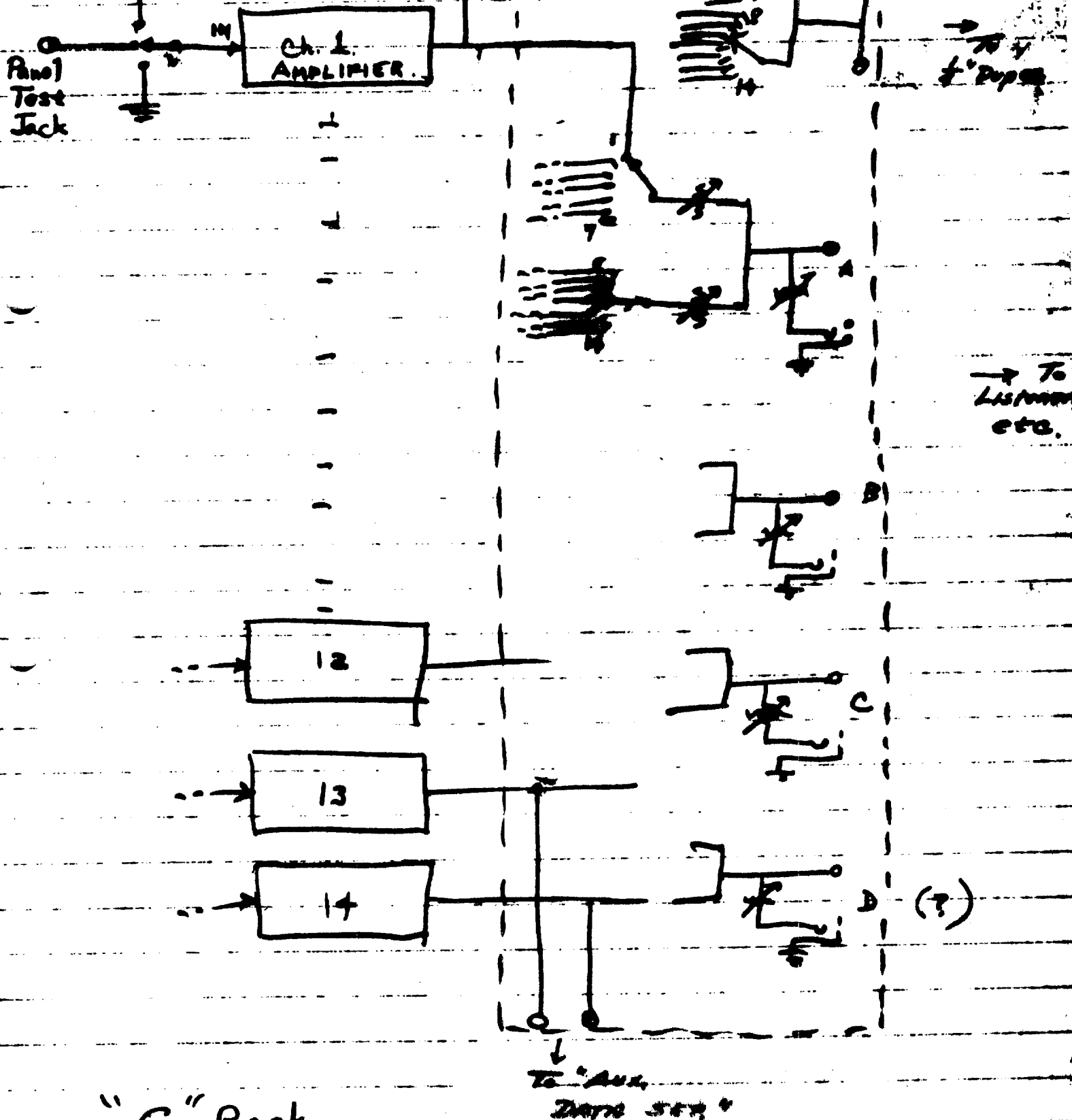
25X1A



From Playback
head

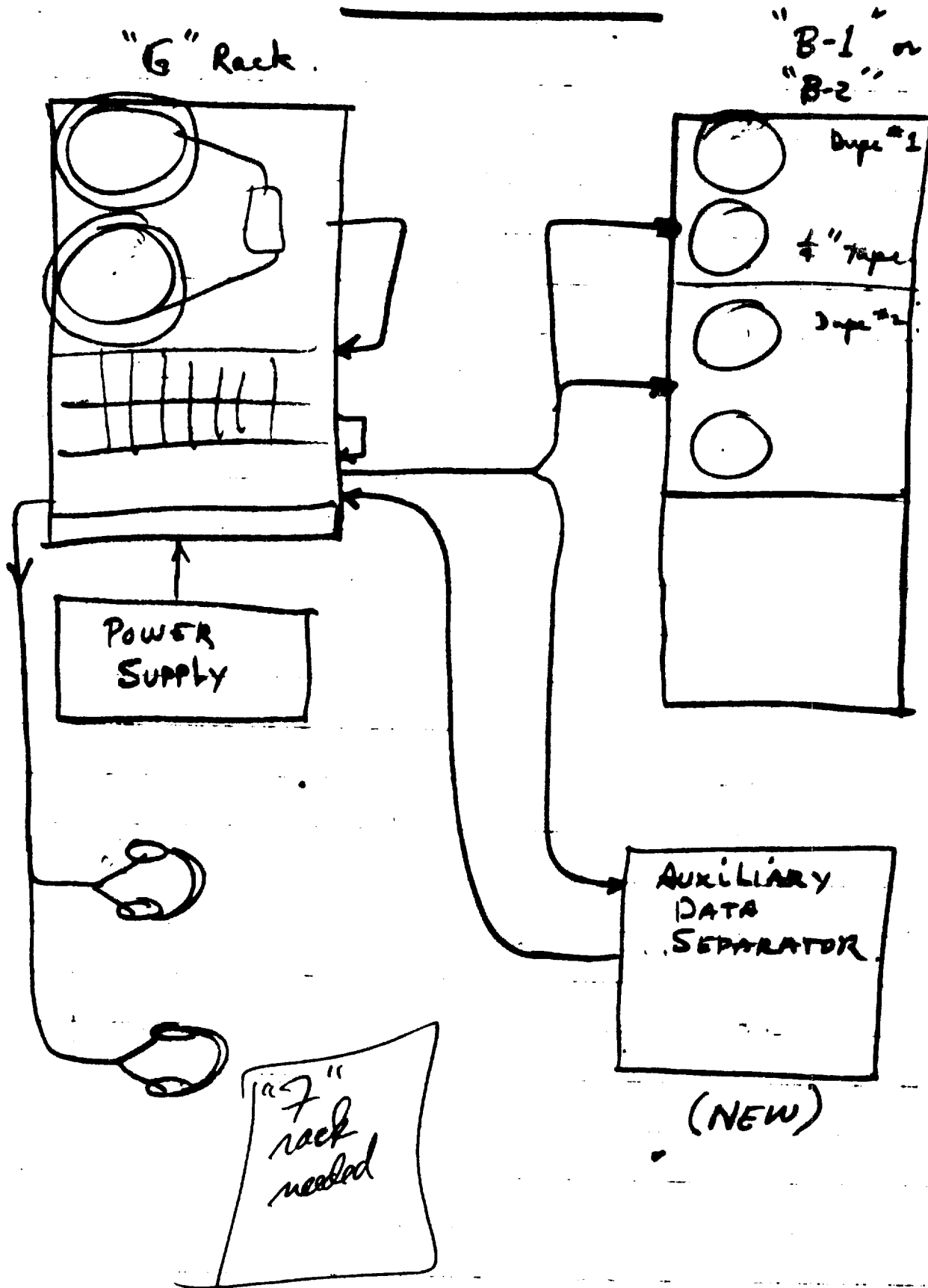
To 1' Dye.

MIXING CHASSIS



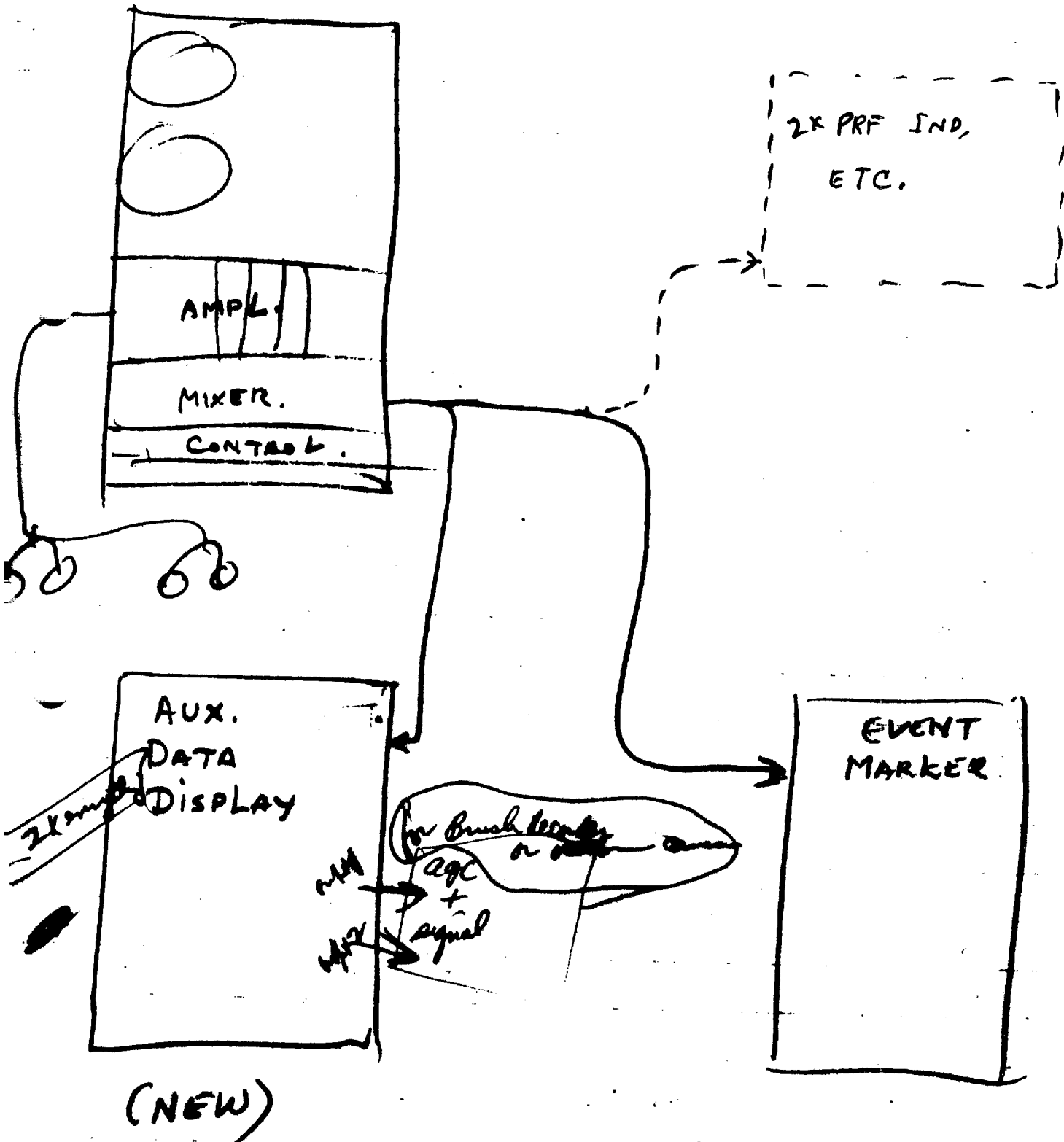
"G" Rack

SECRET



ANALYSIS.

"C" Rack.



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SPECIFICATIONS FOR DEMODULATOR UNIT

1.1 These demodulator units are intended to complement the RF/video pre-amplifier units associated with the receiving channels VIII through X. The detailed block diagram of the demodulator unit covered by these specifications is shown in figure 1. All references to functional sub-units are referenced to the nomenclature established in this figure.

1.2 The video amplifier shown in Figure 1 is intended to raise the pulse signal from the video pre-amplifiers to a level suitable for application externally to the pulse stretching sub-unit internal to the demodulator unit. This video amplifier shall be completely transistorized, insofar as possible. It shall have a nominal gain of 40 db over a band width of 100 cps to 5 Mc/s. It shall not saturate at the maximum output signal level delivered by the pre-amplifier. The noise figure of this amplifier shall not exceed 25 db at any frequency between 100 cps and 5 Mc/s.

1.3 The pulse stretcher sub-unit is intended to operate from video signals obtained from the output of the video amplifier specified in 1.2 above. It shall provide the functions required thereof, in the System 1 pulse stretcher with the exception that it shall be completely transistorized. When in operation, pulse stretcher shall produce a peak output level of three volts (-3 db.) with a source impedance of 1000 ohms.

1.4 The video amplifier output also shall be applied to a narrow band amplifier. This amplifier shall have a band width of 10 cps, centered at the nominal chopper frequency, and its gain characteristics shall be such that the RMS noise level, out of the amplifier, across a 1000 ohm load, will be approximately .08 volts. The dynamic range of the amplifier shall be such as to produce a signal level of at least 3 volts peak before saturating. If saturation occurs, the design shall be such that the band width specifications of the amplifier suffer no deterioration.

1.5 The outputs of the pulse stretcher and the narrow band amplifier specified above shall be applied to a passive summing network of such a characteristic as to provide the correct driving current for the tape head to which these signals are applied.

1.6 The outputs from the pulse stretcher and the narrow band amplifier shall be applied to respective thresholds. The function of these thresholds is to provide a sustained indication of signal activity, when such activity becomes evident at some minimum signal level, for some specified length of time. The pulse stretcher as specified in 1.3 above will contain intrinsic provisions for effecting a threshold action on a pulse-to-pulse basis. The pulse threshold device shall be such that the presence

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of a sustained pulse signal for time in excess of $1/10$ of a second at a repetition rate of 100 cps or more, shall cause the pulse threshold to "lock." Once "locked," this threshold shall remain in this state for one second. After the lapse of this one second period, the "lock" shall be broken and the same criteria as in the preceding will apply towards resumption of the lock condition.

1.7 The CW threshold is intended to perform a similar function for CW signals appearing in the output of the narrow band amplifier. Its characteristics shall be such that for the condition of a signal of duration of at least $1/10$ of a second and 8 db above the n.s. noise, shall cause the CW threshold to indicate the presence of this activity. As for the pulse threshold case, this action shall persist for a second, whereupon the "lock" shall be broken.

1.8 The indications from the threshold sub-units shall be effectively summed to provide a "channel lock" indication. Activity of one or both of the thresholds shall suffice to indicate this condition. The threshold output signals or indications also, are used to perform logical switching functions internal to the demodulator unit itself. In the case of CW operation, it is necessary that a chopper be utilized to modulate periodically the dc voltage developed by signal rectification in the crystal detector circuit. On the other hand, for optimum pulse reception, the chopper action should be absent and the crystal should be provided with an operating bias. The relays, K1 and K2, when respectively energized, provide these conditions for pulse or CW operation. In the absence of a lock condition, it is considered desirable to optimize alternately, the crystal video receiving system with which this demodulator unit is associated for pulse and CW operation. To this end, a cycling timer shall be provided. This is simply a continuously cycling switch with a period of one second. Within this period it shall provide, on an alternate basis, optimum conditions for pulse and CW reception. This timer shall have means provided to weight the proportion of time spent in the CW condition from 10% to 90%. This shall be a maintenance type of adjustment. The relays shown in Figure 1 are not intended to be absolute, specified ways of performing the logic required, but are simply intended to be illustrative of the switching process desired.

1.9 Means shall be provided as maintenance adjustment to provide complete lock-out of either the CW or pulse capability.

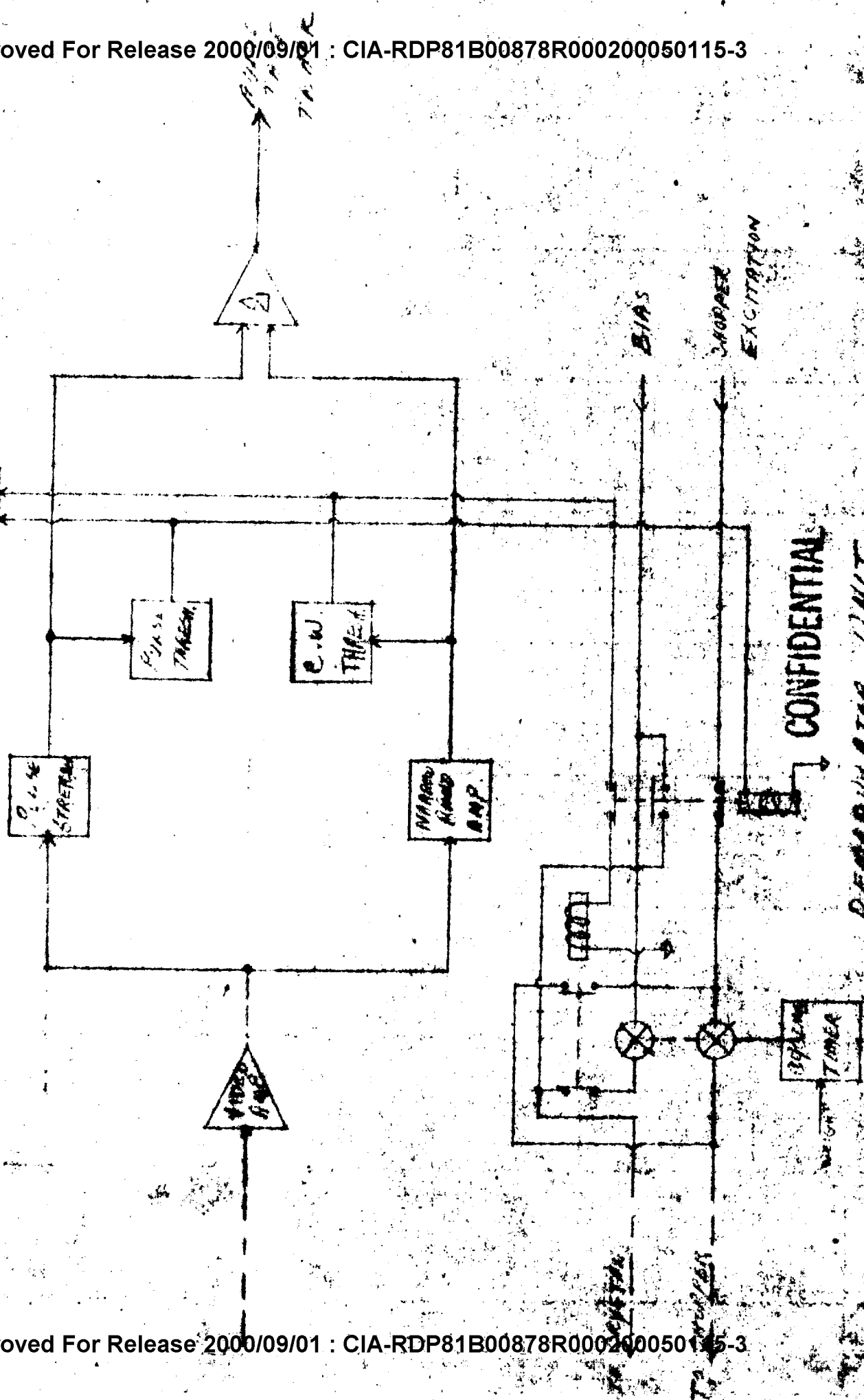
2.0 Although not explicitly shown in figure 1, modifications to provide CW capability must be effected in the RF/video pre-amplifier units associated with receiving equipments, channels VIII through X. This modification will essentially consist of providing for the installation of a suitable chopper. The chopping frequency should nominally be 700 cps.

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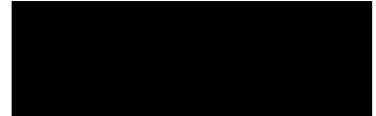
DATE: September 24, 1956

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SUBJECT

Suggestions for Supply Requisitions
Originating at the Various Detachments

FROM:

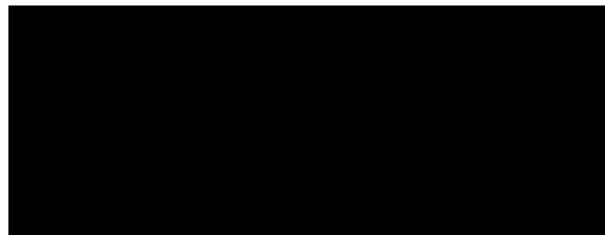


Many expendable items can be obtained by local purchase by submitting the request to the supply sergeant. Items from the main supply depot should be requisitioned in a similar manner. In most cases this is expedited by going directly to the supply sergeant since it is the primary duty of the supply officer to monitor his performance. In all cases it is advisable to require some action even though it be a negative report regarding certain deadlines included in the requisition.

A responsible supervisor can request that urgent matters be handled by TWX. The action copy must go to the depot, and an information copy to the contractors is helpful. In addition, a follow-up reply should be requested regarding action taken by the depot. An information copy of such action should be requested for the contractor.

Items not included in the FAK list may be officially added by the responsible section supervisor by notifying the supply section in writing. This may be handled by TWX in exactly the same manner as other requisitions. If the responsibility of action is placed upon the depot, the depot can then obtain assistance from the contractors. Otherwise, the contractor is powerless to take any action or give any assistance.

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